

Application No.: 10/618961

Case No.: 54477US024

**REMARKS**

Claims 1 to 18 are pending. No claims have been canceled. No claims have been withdrawn from consideration. No claims have been added. Claims 1, 5 and 7 are amended. Basis for the amendments to claim 1 may be found on page 17, lines 1-6. Basis for the amendments to claims 5 and 7 may be found on page 20, lines 13 to 25.

**§ 102 Rejections**

Claims 1, 5-13, 15-18 and 21 stand rejected under 35 USC § 102(b) as being anticipated by Segawa et al. (U.S. 4,242,398). The rejection is traversed in part and avoided in part by amendments presented herein.

The reference describes an article comprising a fibrous web (A) compression molded to a nonwoven fibrous sheet (B), the fibrous sheet (B) consisting of a "reticulated sheet structure (E)".

Claim 1 may be first distinguished from the reference by the limitation of "a transverse aspect ratio of from 1.5:1 to 20:1". Applicant's microfibers are substantially rectangular in cross-section, which enhances the surface area of the microfibers and results in improved bonding to the polymer matrix. The reference provides only conventional nonwoven-type fibers that are irregular in cross-section. Note at column 6, lines 45 to 49 the reference states:

"...the individual constituent fibers have asymmetrical irregularly-shaped cross sections of different profiles and sizes, and in addition, each of these fibers has a cross section irregularly varying in profile and size along its axis."

The instant microfibers having a substantially rectangular cross-section are prepared by the microfibrillation methods described on page 6, line 19 to page 16, line 31 resulting in the microfibers described on page 17, lines 1 to 21. None of the processes described in Segawa et al., including those of column 5, lines 31- 68 will result in Applicant's microfibers.

Claim 1 may further be distinguished from the reference in that the instant microfibers are oriented. Orientation of the microfibers greatly improves the mechanical fibers such as the modulus, tensile strength, and elongation.

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Reference “non-woven fibrous web A” described on columns 3 and 4 do not teach or suggest the use of oriented fibers. “Non-woven fibrous sheet B” described in column 4, line 61 to column 5, line 30 would seemingly exclude the orientation of the fibers. See column 4, lines 65-68 and column 5, lines 22-30 which states that the “reticulated sheet structure E”, are substantially unstretched thermoplastic polymeric fibers.

Applicants further note that the article of Segawa et al. comprises two layers: the

Regarding claims 5-7, the claims have been amended to more clearly indicate the types of coatings or surface treatments contemplated by the inventors; i.e. those that promote binding of the monomer/ resin or subsequent polymer to the microfibers. The reference text relied upon in the Office Action are fire-retardants or mold release agents.

The rejection of claims 1, 5-13, 15-18 and 21 under 35 USC § 102(b) as being anticipated by Segawa et al. (U.S. 4,242,398), has been overcome and should be withdrawn.

### § 103 Rejections

Claims 2 to 4 and 14 stand rejected under 35 USC § 103(a) as being unpatentable over Segawa et al. (U.S. 4,242,398) in view of Omori et al. (U.S. 3,954,928). The rejection is traversed.

The Office Actions assert that Segawa et al. teach the basis claims elements of Applicant's process. Applicants disagree for the reason put forward supra. Further, Omori et al do not correct the defects of Segawa et al.

Omori et al describe a process for preparing reticulated fibrous structures by extruding a molten thermoplastic resin containing a foaming substance, quenching the extrudate and “drafting” drafting the extrudate to cause fibrillation. Applicant's Agent does not believe the term “drafting” to be synonymous with “orienting”, e.g. imparting a permanent deformation.

Applicant's note that Segawa et al. reference Omori et al. at column 6, lines 17 to 23. Segawa notes that the process of Omori may be used to prepare “the reticulated sheet structure E”. However Segawa et al. clearly state that the “reticulated sheet structure E” consists of unstretched thermoplastic polymer fiber (column 5, lines 21 to 25), therefore the Examiner may not rely on Omori to suggest orientation of the fibers, as it is clearly precluded by Segawa et al.

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There remains a question of how Segawa et al may cite Omori et al for a process for preparing the "reticulated sheet structure E", when Segawa precludes orientation of the fibers and Omori clearly recites "drafting" the extrudate. Applicant's Agent submits that the conditions of "drafting" are sufficient to align the fibers in one direction forming the reticulated mesh-like structures (described at Omori column 2, line 64-68) without imparting a permanent deformation to the individual fibers. At Omori col. 7, lines 5 to 12, the purpose of the "drafting" is to fibrillate (i.e. split) the extrudate into fibers. There is no teaching that the "drafting" imparts a permanent orientation to the fibers *per se*.

The rejection of claims 2 to 4 and 14 under 35 USC § 103(a) as being unpatentable over Segawa et al. (U.S. 4,242,398) in view of Omori et al. (U.S. 3,954,928) has been overcome and should be withdrawn.

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration of the application is requested.

Respectfully submitted,

Date

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